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L2 L1 and (cpu or parallel\$ or plural\$)

1 L2

L1 5805895.pn.

1 L1

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L11: Entry 6 of 14

File: USPT

Jul 18, 2000

DOCUMENT-IDENTIFIER: US 6091896 A

TITLE: Debugging optimized code using data change points

Detailed Description Text (53):

Fragment mapping tracks the location of each of the groups of contiguous instructions derived from a particular source statement. Logical line mapping follows the execution point in the abstract graph of the source program, rather than exactly what machine instruction is being executed. A logical line is an identifier of a location in the machine code that structurally corresponds to the designated source line. Fragment mapping and logical line mapping are described in U.S. patent application Ser. No. 8/387,054, filed Feb. 2, 1995, "Source line tracking in optimized code", assigned to the assignee of the present application.

## CLAIMS:

## 11. A compiler comprising:

(A) means for receiving a source code representation of a program defining an abstract machine;

(B) means for translating the source code representation into a second representation of the program, the second representation defining translated instructions for implementing the abstract machine on a pre-existing machine;

(C) to identify correspondences between translated instructions and portions of the source code representation;

(D) means for identifying particular translated instructions that change the state of the abstract machine;

(E) means for generating data identifying correspondences between portions of the source code representation and the translated instructions, and data identifying, out of a plurality of machine instructions that correspond to a portion of the source code representation, those particular translated instructions that were identified as changing the state of the abstract machine.

## 14. A computer-readable memory configured so that it can be used to direct a computer:

(A) to receive a source code representation of a program defining an abstract machine;

(B) to translate the source code representation into a second representation of the program, the second representation defining translated instructions for implementing the abstract machine on a pre-existing machine;

(C) to identify correspondences between translated instructions and portions of the source code representation;

(D) to identify particular translated instructions that change the state of the

abstract machine;

(E) to generate data identifying correspondences between portions of the source code representation and the translated instructions, and data identifying, out of a plurality of machine instructions that correspond to a portion of the source code representation, those particular translated instructions that were identified as changing the state of the abstract machine.